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1 **RECORD OF ORAL HEARING**
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3 **UNITED STATES PATENT AND TRADEMARK OFFICE**
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6 **BEFORE THE BOARD OF PATENT APPEALS**
7 **AND INTERFERENCES**
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10 **Ex parte YUN SOO CHOE and OK KEUN SONG**
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13 Appeal 2008-006322
14 Application 10/652,493
15 Technology Center 3700
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18 Oral Hearing Held: July 23, 2009
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22 Before WILLIAM F. PATE, III, LINDA E. HORNER, and KEN B.
23 BARRETT, Administrative Patent Judges

24

25 ON BEHALF OF THE APPELLANT:

26

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33

34 The above-entitled matter came on for hearing on Thursday, July 23, 2009,
35 commencing at 9:09 a.m., at the U.S. Patent and Trademark Office, 600
36 Dulany Street, Alexandria, Virginia, before Dawn A. Brown, Notary Public.

PROCEEDINGS

THE USHER: Calendar number 42, Mr. Svhla.

JUDGE PATE: Thank you, Lisa.

THE USHER: You're welcome.

JUDGE PATE: Good morning, sir.

MR. SVIHLA: Good morning, Your Honors.

JUDGE PATE: Could you introduce who you brought in with you?

MR. SVIHLA: I did not bring anyone in. We put it down but the person was not able to come.

JUDGE PATE: Okay. Thank you, sir. Well, we've had a

chance to look at this case beforehand, the technology anyway, and we're ready to hear your arguments about patentability.

MR. SVIHLA: All right.

JUDGE PATE: Let me ask you a question first about claim construction.

MR. SVIHLA: Okay.

JUDGE PATE: Let me refer you to claim 1, the last four clauses there it says, "A cover heater formed as a thin film type on the top surface of the cover." Then it says, "A heat-resistant layer formed on the surface of the cover heater."

Right?

MR. SVIHLA: Yes.

JUDGE PATE: And then it says, "A reflective layer between the cover layer and the heat-resistant layer.

1 MR. SVIHLA: Yes, it does.

2 JUDGE PATE: The question that occurs to me is, how can the
3 reflective layer be between the cover heater and the heat-resistant layer if the
4 heat-resistant layer is formed on the surface of the cover heater?

5 MR. SVIHLA: That is a good question. That is an issue that has not
6 been raised.

7 JUDGE PATE: Right. I understand.

8 MR. SVIHLA: As you can see what we have -- what we have
9 disclosed is the cover heater, the reflective layer on top of that, and then the
10 cover layer. The reflective layer actually is disclosed as being optional,
11 depends on whether or not the cover material has got a good heat radiation
12 property or not, and if so, you'll put it in there.

13 I see what you're saying and perhaps it could be worded differently,
14 but it has been a long prosecution and that issue has never come up.

15 JUDGE PATE: Right. I understand. Then with respect to claim 2, it
16 says that the single wire pattern is formed over the entire top surface of the
17 cover.

18 MR. SVIHLA: Yes.

19 JUDGE PATE: But in actuality, it is formed as a track on the cover.

20 MR. SVIHLA: That is correct.

21 JUDGE PATE: It doesn't really cover the entire top surface.

22 MR. SVIHLA: You are correct.

23 JUDGE PATE: Okay. I just wanted to make sure I was
24 understanding the invention correctly. And so now let's go to your
25 arguments about patentability.

1 MR. SVIHLA: All right. Well, claim 1, of course, has two features
2 that are in dispute. One is the heat-resistant layer. And what the Examiner
3 has in the reference, the Chow reference, is there is a protective layer, 25 and
4 25', that are formed on the cover heater, and the purpose of that is to isolate
5 the heater from the substrate that is being processed to avoid
6 contamination.

7 And there is nothing in the reference that talks about – there is no
8 discussion of having any heat-resistant property. And as we understand the
9 rejection, the Examiner's position is because paragraph 35 of our spec
10 describes the cover heater is formed. It is a thin film type.

11 He says your protective heat-resistant layer is a thin film. My
12 protective layer in Chow is a thin film. Since your thin film is heat-resistant,
13 then my thin film must also be heat-resistant. I guess he is going to -- you
14 know, materials having -- the same material is going to have the same
15 property even if it is not disclosed. But in this case, we don't have a
16 specific material. At least we don't disclose it as pyrolytic boron nitride.

17 And further, our paragraph 35 describes the heat-resistant layer blocks
18 heat generated by the cover heater from being transferred to an external
19 space above the heating crucible. So heat-resistant layer as we use it
20 actually means heat-blocking.

21 JUDGE PATE: Right.

22 MR. SVIHLA: And, in fact, the Japanese priority application uses the
23 term adiabatic layer instead of heat-resistant. And we submitted a
24 translation of that with the Appeal Brief, and we discussed that where we
25 explain that adiabatic, you know, means heat-blocking or blocks
26 transmission.

1 And so the Examiner has talked about how any layer can impede a
2 heat transfer, but impeding heat transfer is not the same as
3 blocking heat. So our position would be, first of all, is his conclusion that
4 because both layers are thin they have both -- heat-resistant is not a proper --
5 is not a reasonable interpretation of that term.

6 And, in fact, by saying that any thin layer would be heat-resistant,
7 you're basically converting the term heat-resistant to thin or you're ignoring
8 it. You're just reciting the layer. So I'll argue that is not a reasonable
9 interpretation of that term.

10 Now, as far as the reflective layer that we have between, the Examiner
11 admits, of course, the Chow reference doesn't have that, and he has used
12 Chandler or Isaacson to show that.

13 Now, our position first of all is they're not really analogous art. We've
14 got a heating crucible -- Chow is a heating crucible; Chandler is a radiant
15 panel where you put, like, on a wall of a house to heat it. Isaacson is an
16 aquarium heater.

17 So even though they're directed to heating, when you look at the
18 functions of the layers, they're completely different.

19 And it is our understanding that he is saying that they're showing a
20 reflective layer between a heat-resistant layer and a heater. In Chandler
21 what you have got is it is just a backing layer. And apparently you've got a
22 corrugated reflective layer, and you want to be able to put this on the wall
23 like wallpaper, so you've got this flat backing layer so you can do that.

1 There is other embodiments where there isn't a backing layer. So if it
2 were being used for heat-resistant properties, you'd have it in all the
3 embodiments. But in this case, it appears only to be put there just so you
4 can mount on a wall, which, of course, is a different function than our heat-
5 resistant layer is performing.

6 Isaacson, what he considers to be the heat-resistant layer is a plastic
7 holder that you mount on the aquarium wall that holds the heater against it.
8 So our view there would be that -- again a different function.

9 And there is nothing, again, in those references about it having any
10 heat-resistant property. He has used -- has said, well, it is known that if you
11 take a kitchen towel or a paper towel and get a hot pan on the stove, then
12 that means that that can impede heat. But again, we're talking about
13 blocking heat, and there is nothing in the references.

14 The only way you would look at those references and say those are
15 heat-resistant layers is if you basically look at our spec and say, okay, I need
16 a heat-resistant layer so I'm going to call those heat-resistant layers. There is
17 really nothing in the references themselves that would lead you to that
18 interpretation.

19 Then we've got the issue in claim 2 and 18 of the single -- body cover
20 heaters constituted by a single wire pattern. And what Chow has, basically,
21 is a two-pattern heater. There are two patterns, two different layers that are
22 intertwined.

1 So we've got a single pattern. The entire heater is formed by a single
2 pattern. And the Examiner is saying, well, each of Chow's two patterns is a
3 single pattern by itself, so each of those meets the claim. But our argument
4 is that really is not a proper interpretation of the word "single," which means
5 alone, unaccompanied by any other.

6 Chow does have one mention, basically, in the summary of the
7 invention where it talks about it can be one or more key elements. Let's see.
8 It says -- summary of the invention it says, "a cover thereon with one or
9 more apertures therein and with thin film heating elements on that cover."
10 That is the only place "one" is mentioned.

11 Our view is that all the embodiments have two. He talks about --
12 they're using two to get this uniform pattern, and our view is, you know,
13 maybe that is an error.

14 There is nothing in disclosure. It is really contrary to the rest of the
15 disclosure, and that applies to the cover heater only, not to the body heater.
16 Because we also have -- claim 18 calls for the body heater to be a single
17 pattern.

18 So even if it did call for the cover heater, you can say, okay, that is
19 one. There is no disclosure that the body heater can be formed as one.

20 I think the Examiner at one point said that claim – column 5, lines 49
21 through 53, of Chow say that the body heater can be used -- yeah, column 5,
22 lines 49 through 53, it says the body heater can be constructed in the same
23 way as the cover heater. But that doesn't really talk about that.

1 That talks about -- so we can understand it, you have the main
2 embodiment of Chow in figure 1 and then you have a different embodiment
3 in figure 2, and it is really talking about that. You can form that cover heater
4 in the same way you form the cover heater in embodiment 1. So we don't
5 think there is any support in Chow to say that you could form the body
6 heater of 1.

7 This is -- we say that the insulating material of the cover has good
8 heat-radiation property. Chow's cover material is pyrolytic boron nitride.
9 And the Examiner has taken the position -- because similar to claim 1, he
10 says because you have an insulating layer and it has a good heat-radiation
11 property, then my cover material, which is an insulating material-- because
12 the boron pyrolytic nitride is insulating because you have these patterns
13 going on, it also has the good heat-radiation property.

14 And again, we don't think that -- obviously, there is a wide range of
15 heat-radiation properties and materials. And just because a material is
16 insulating, it has nothing to do with whether or not it has -- in this case, it is
17 electrically insulating actually, so we don't think that that is a valid -- a
18 reasonable interpretation of that.

19 JUDGE HORNER: How would one of ordinary skill in the art
20 interpret the word "good" in your claim?

21 MR. SVIHLA: Well, obviously, there would be a range from no --
22 and it is obviously sort of a relative term. There would be a range from no
23 radiation property to, you know, perfect black body. Good would be
24 somewhere in between. The problem we have, though, is that there is no
25 evidence in the record to show that -- what the, you know, anything at all
26 about the --

1 JUDGE HORNER: But based on the breadth of the definition you
2 just gave, doesn't the prior-art material fall somewhere between 0 and a
3 perfect black body?

4 MR. SVIHLA: It would seem to. It would seem to fall somewhere
5 between 0 and a black body. I think it would have to because it cannot be
6 anywhere else.

7 JUDGE PATE: Is there any indication in the specification to direct
8 one to what would be good?

9 MR. SVIHLA: We have actually -- alumina is disclosed in the
10 material. We have a material disclosed, alumina. So alumina, obviously, we
11 consider to have a good heat-conduction property. Now, there is no
12 evidence to show what that specific number is. Obviously, it is known.

13 JUDGE PATE: Uh-huh.

14 MR. SVIHLA: The pyrolytic boron nitride is known, but the
15 Examiner hasn't provided any evidence to show that -- you know, what they
16 are, if they're the same or similar.

17 JUDGE PATE: So the claim 26 depends upon 25, and it is the one
18 that says alumina.

19 MR. SVIHLA: Excuse me?

20 JUDGE PATE: Claim 26 actually depends on 25 and it says alumina.

21 MR. SVIHLA: Right.

22 JUDGE PATE: So theoretically, claim 25 is broader than alumina?

23 MR. SVIHLA: That is correct.

24 JUDGE PATE: And what Judge Horner is getting at is, is there some
25 indication as per maybe Seattle Box, the case that says, you know, if you've
26 got these relative terms –

1 MR. SVIHLA: Right. It is a relative term, no question about that. So
2 I recognize that that is a potential issue.

3 JUDGE PATE: Sure.

4 MR. SVIHLA: But our primary objection, of course, is his
5 broad –

6 JUDGE PATE: Right. We understand that, the basic rejection of
7 Chow.

8 MR. SVIHLA: Then we have in claim 9, we have the cover
9 heaters formed in concentric pattern. And clearly Chow doesn't have a
10 concentric pattern. It is sort of this mesh thing, back-and-forth stuff. And
11 basically, you know, we've got the -- and I think in this case he is actually
12 looking at the embodiment in figure 7 of Chow, which has got one hole – the
13 main embodiment in figure 1 of Chow, it has got a bunch of holes.

14 But figure 7 shows one hole, and it doesn't really show what the
15 pattern is, so we don't really know what it is. There is no top view of that.
16 So it is anybody's guess.

17 JUDGE PATE: Right. But you would assume that it is the crisscross
18 pattern shown in figure 4?

19 MR. SVIHLA: That is a reasonable assumption because he used that
20 pattern to provide the uniform distribution and so forth.

21 And basically, there is just nothing to -- you know, he basically is
22 looking at our spec. Well, we say, well, it can be other patterns -- well, with
23 concentric can be other patterns. So he is looking at that and saying, well,
24 you say it can be other things, so, therefore, it can be concentric.

1 So he is really sort of using our spec as the basis to reject the claim,
2 which we don't think is proper. He hasn't identified any reason or any of
3 that.

4 He does talk about how he uses uniform heating, but it still -- we just
5 don't see anything where it would lead you to a concentric pattern.

6 Move on to claim 16. Now, claim 16 -- we had changed this
7 during prosecution because we were in a -- the Examiner is saying it is a
8 product-by-process claim, and we tried to modify it to where we don't
9 believe it is product-by-process any more. But the cover heater is constituted
10 by a spray-heating block on the cover. The spray-heating block is
11 constituted by spray-heat-emitting material.

12 And what Chow has got, you form a layer of pyrolytic graphite on this
13 surface and you etch it to form the pattern and you put an insulating layer in
14 the form of the etch. So it is etched and it is a pattern so there is no block.
15 At the minimum there is no -- even if the spray heating, the spray part were
16 considered to be product-by-process, there is no block in our view because
17 you've got a pattern. If you've got a pattern, there is no block.

18 And the Examiner hasn't really addressed that aspect of how the
19 pattern becomes a block. So our position would be there is not a prima facie
20 case there.

21 29 and 30, we've got the single -- and we've added some of these
22 claims to try to adjust the interpretation the Examiner has had. 29 and 30
23 say the cover layer is a single-layer cover heater -- it was a single-layer body
24 heater, which is what we have, we disclosed.

1 The reference has two layers. And so we don't see where there is any
2 -- first of all, the Examiner said, well, each layer could be a single layer, but,
3 you know, we don't think there is a single layer here. It is a three-layer
4 heater because you've got the heater-insulator-heater in Chow.

5 JUDGE PATE: The Examiner's better argument is just to say you can
6 make one layer. KSR says, you know, if there is a finite number –

7 MR. SVIHLA: Of course, as you know, KSR really hadn't come out
8 at the time when we wrote the thing. And when it did come out -- so as you
9 look through it, we kind of had a lot of, you know, quotes of MPEP and law
10 cites in the Appeal Brief that we had to then sort of modify. We did the best
11 we can to try to correct it.

12 JUDGE PATE: There are several Reply Briefs here.

13 MR. SVIHLA: Right. Well, the first Reply Brief – you know, we are
14 talking about the Reply Brief. December 31st one was actually entered.
15 There were some other issues in the other one. So I presume that is not
16 under consideration but, you know, it is obviously in the file.

17 JUDGE PATE: Sure.

18 MR. SVIHLA: Then the last claim we have is claim 31, and this is
19 where we -- of course, we talk about how our heat-resistant layer really was
20 a blocking layer and we actually added a claim to specifically state that
21 which say the heat-resistant layer blocks heat generated with the cover
22 heater from being transferred outside the heating crucible.

23 And the Examiner has never addressed that limitation, not in the final
24 office action, not in the Examiner's -- we pointed it out in the Appeal Brief
25 that he hadn't addressed it, and he didn't address it in the Examiner's Answer
26 either.

1 So basically, he hasn't shown at all where that feature would be. And
2 even if there would be some question about the heat-resistant -- does it mean
3 heat blocking or not, like we say it does, this clearly, I think, adds an
4 additional level of insurance that is interpreted to mean that. So our view is
5 since it has not been addressed then it –

6 JUDGE BARRETT: Under your construction, then, of heat-resistant
7 layer, does claim 31 add any limitation?

8 MR. SVIHLA: Well, I mean, obviously by the principle of claim
9 differentiation, you would have to assume it is as you pointed out with
10 respect to 25-26, claim 1 would have to be somewhat broader because we're
11 narrowing it. I mean, it is -- I guess what we're doing is we're specifically
12 stating the property that we consider it to have. I mean, because of this --
13 the Examiner's interpretation.

14 I mean, in our view, it doesn't add anything because it -- the heat-
15 resistant layer already does that as interpreted in the specification. But
16 obviously, under the terms of the doctrine of claim differentiation –

17 JUDGE HORNER: The doctrine of claim differentiation isn't an
18 absolute rule. It doesn't always have to apply.

19 MR. SVIHLA: Right. But the reason we added the claim exactly was
20 because of this dispute with the Examiner over how to interpret this heat
21 impeding and blocking and so forth.

22 JUDGE PATE: Right. And it was added -- you know, if we didn't
23 construe claim 1 that way, you know, the way you're suggesting it should be
24 construed, then you've got claim 31.

25 MR. SVIHLA: Right. And that is what we've had -- sort of a fallback
26 position I guess it were.

1 JUDGE PATE: Do you have any more points for us?

2 MR. SVIHLA: I think I've covered -- I mean, obviously, this is all
3 covered in somewhat greater detail, but I think that, you know, I went
4 through all the points we have.

5 Well, let me see. Hold on. I'm sorry. No, there is one more point, I
6 guess. Independent claim 10, we have a conductive -- the cover heater is
7 constituted by its sintered printed conductive paste and then conductive
8 paste comprises metal particles and metal oxide.

9 And this Okuda reference has lots of combinations of paste, but none
10 of them have metal particles and metal oxides. So we've explained all that.

11 And the Examiner during interview said, well, I'm construing, you
12 know, particles comprising metal – metal particles to mean particles
13 comprising metal, which obviously is different.

14 And, you know, he has got examples of, well, you've got tungsten
15 carbide or something, and so all -- the only one I guess -- metal nitrate
16 particles and metal carbide particles combined with metal oxides. But you
17 know, the carbides are not metals, and so, you know, his interpretation
18 seems to be that particles comprising metal, which is not what we claimed
19 on that claim 10.

20 The last thing I guess is the convergent-divergent nozzle in claims 27
21 and 28. Clearly, Chow doesn't have a convergent-divergent nozzle. And
22 actually if you look at figures 5 and 6 of the Chow, as we pointed out, it
23 talks about if you want to have good directivity, you could have converging
24 beam pattern. So we're calling for a diverging beam pattern.

1 The Examiner points to -- of course, he has got a couple of
2 references that have the convergent-divergent with the divergent beam
3 pattern. But our view was since Chow wants to use converging, you
4 wouldn't -- it would destroy the intended function, make it inoperable for its
5 purpose, which is to have a converging beam.

6 He does point to figure 7, which does show just a converging nozzle.
7 There is no discussion of what that pattern would be. Our view was, you
8 know, it talks about -- if you want to have directivity, I'm not sure you
9 would have that there.

10 But even if you -- it did have a diverging pattern, then we don't see a
11 need to use those convergent-divergent nozzles from the other references.
12 You know, there is nothing that we see that convergent-divergent provides
13 any benefit. If you've already got a divergent pattern, then you wouldn't
14 need to combine them.

15 JUDGE PATE: I think we understand that argument.

16 MR. SVIHLA: So that is it then. If you have any more questions, I'll
17 be glad to answer them.

18 JUDGE PATE: I have no more questions for you. So the Board will
19 take this case under advisement.

20

21 (Whereupon, the proceedings at 9:31 a.m. were concluded.)